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ABSTRACT

This investigation tested the influence of parents' involvement with homework as a moderator variable in the relation between children's cognitive abilities (predictor variable) and their school achievement (outcome variable). Participants were 55 French-speaking second graders and their parents. Two dimensions (quantity and quality) of parents' involvement were investigated. Parents were distinguished as primary or secondary helpers with homework. For each group, regression analyses were conducted to test the moderator effect of each dimension of parent involvement: (1) between children's verbal abilities and achievement in French; and (2) between children's nonverbal abilities and achievement in mathematics. Results indicated a positive relation between children's verbal abilities and their achievement in French, but not between children's nonverbal abilities and their achievement in mathematics. A negative relation between the duration of primary parent involvement with homework and children's achievement in French and mathematics was observed. Data also indicated a positive relation between the quality of involvement with homework of the secondary parents and children's achievement. The quality of involvement by the secondary parent was the only variable that acted as a moderator between children's verbal abilities and their achievement in French. Results suggested that both parents have complementary roles in supporting their child's school-related activities. (Contains 19 references.) (Author)

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CAN PARENTS' INVOLVEMENT WITH HOMEWORK MODERATE THE RELATION BETWEEN CHILDREN'S COGNITIVE ABILITIES AND SCHOOL ACHIEVEMENT?

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This paper was presented at the Biennial Meeting of the Society for Research in Child Development, Washigton, DC, April 3-6, 1997. **Requests for information should be sent to Sylvie Normandeau, Associate Professor, Université de Montréal, School of Psychoeducation, P.O. Box 6128, Centre-ville, Montréal (Qc), Canada, H3C 3J7. e-mail: normande@ere.umontreal.ca**

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ABSTRACT

The purpose of the present investigation was to test the influence of parents involvement with homework as a moderator variable in the relation between children's cognitive abilities (predictor variable) and their school achievement (outcome variable). Participants were 55 French-speaking second graders and their parents. Two dimensions (quantity and quality) of parents involvement were investigated. Parents were distinguished on the basis of their primary or secondary involvement with their child's homework. For each group of parents (primary and secondary parents), regression analyses were conducted to test the moderator effect (Baron & Kenny, 1986) of each dimension of parent involvement (duration or quality of involvement) 1) between children's verbal abilities and achievement in French and 2) between children's nonverbal abilities and achievement in Maths. Results indicated a positive relation between children's verbal abilities and their achievement in French, but not between children's nonverbal abilities and their achievement in Maths. A negative relation between the duration of the primary parent involvement with homework and children's achievement in French and Maths was observed. Data indicated also a positive relation between the quality of involvement with homework of the secondary parents and children's achievement in French and Maths. The quality of involvement by the secondary parent was the only variable that acted as a moderator between children's verbal abilities and their achievement in French. Our results suggest that both parents have complementary roles in supporting their child's school-related activities.

INTRODUCTION

Though studies have reported the influence of parents expectations on children's school achievement, and though models of school achievement integrating the influence of parents expectations have been proposed (e.g., & Alexander & Entwisle, 1988; Entwisle & Hayduk, 1982), few studies have been undertaken to assess specific processes through which parents involvement influences children's school achievement.

Some studies have reported a positive relation between parents involvement and children's school achievement (e.g., Reynolds, 1989, 1991; Reynolds & Bezrucko, 1993; Stevenson & Baker, 1987). However, these studies have addressed only one aspect of parents involvement, their participation in school activities (for ex., meeting with the teacher), and this involvement was assessed through teachers' evaluation rather than by the parents themselves.

Few studies have considered the association between parents involvement with their child's homework assignments and children's school achievement (e.g., Miller & Kelley, 1991). Some studies have reported a negative relation between parents involvement with homework and their child's school achievement (e.g., Chen & Stevenson, 1989; Georges & Elliott, 1995; Miller & Kelley, 1991). In these studies, it is often difficult to determine the influence of parents involvement with homework on the child's academic achievement over and beyond the influence of children's cognitive abilities. Few studies have analyzed the respective contribution of the quantitative (duration of involvement) and the qualitative (parental practices) dimensions of parents involvement with homework (e.g. Georges & Elliott, 1995). Finally, most studies have been conducted with one parent only, and it is often unknown whether that parent was the most or the least involved one.

The purpose of the present investigation was to test the influence of parents involvement with homework as a moderator variable in the relation between children's cognitive abilities (predictor variable) and their school achievement (outcome variable). The two dimensions (quantity and quality) of parents involvement were investigated. Parents were identified according to their self-reported involvement with their child's homework, as either the primary (76% mothers and 24% fathers) or the secondary parent.

METHOD

SUBJECTS

Participants were 55 French-speaking second graders (25 boys, 30 girls; mean age, 94.5 mts) and their two parents (24% of these families had a family income < 30,000$ Cdn, 54% between 30,000 and 60,000$ Cdn, and 22% over 60,000$ Cdn).

INSTRUMENTS AND PROCEDURE

Identification of the Primary and Secondary Parent: Parent were individually asked to identify their respective involvement with their child's homework as the primary or the secondary parent.

Measure of the Quantity and Quality of Parents Involvement: Each parent completed a questionnaire about their involvement with their child's homework that assessed the length of time spent by the parent in helping the child complete his/her homework over a week's period (duration), and the parental practices during the homework sessions (quality of involvement). Parents answered a list of seven items (for ex.: When my child makes an error I guide him in finding the correct solution by himself) on a 5 point Likert-type scale (Cronbach alpha = .76). These items assess the variety of support strategies used by the parent during the homework period.

Children's Cognitive Abilities: The Test of Non Verbal Intelligence (TONI-2) (Brown et al., 1990), and the French version of the PPVT-R (Dunn et al., 1993) were individually administered to the children. These tests were designed to assess respectively children's problem-solving abilities with a figural content and their receptive language abilities. They both assess aspects usually found in traditional measures of intelligence and are considered indicators of children's general cognitive abilities.

Children's school grades: French and Maths school achievement scores, expressed in percentages, were obtained from the children's report cards at the end of the second grade.

RESULTS

DESCRIPTIVE ANALYSES

Number of parents by level of education completed

Parent (n=55)	High School not completed	High School completed	Post-secondary education completed
Primary	17	22	16
Secondary	18	15	22

The level of education completed by the primary or the secondary parents is similar among those who have not completed high school. More of the primary parents have completed high school than secondary parents, whereas more of the secondary parents have completed post-secondary education than primary parents.

Children's scores on the tests of cognitive abilities

Test	M	s.d.	t-test
PPVT-R	117.1	20.7	
			(5.38, dl=50, $p < .0001$)
TONI-2	103.6	13.9	

Children's performance on the PPVT-R was significantly higher than their performance on the TONI-2.

Duration and quality of involvement by the primary and the secondary parent

Involvement	Primary parent		Secondary parent		t-test
	M	s.d.	M	s.d.	
Duration (in minutes)	157.6	77.8	88.4	82.8	(-2.57, dl=54, $p < .05$)
Quality of support	24.9	2.7	21.6	4.3	(5.34, dl=54, $p < .0001$)

The primary parents spent significantly more time doing homework with their child. They also used more diverse support strategies to help their child.

Children's school performance (%) in Mathematics and in French

Content	M	s.d.	t-test
Mathematics	76.7	10.4	
			(0.45, dl=45, n.s.)
French	77.4	11.7	

Children's scores in Maths and French were not significantly different.

PARENT INVOLVEMENT AS A MODERATOR BETWEEN CHILDREN'S COGNITIVE ABILITIES AND SCHOOL ACHIEVEMENT

For each group of parents (primary and secondary parents), analyses were conducted to test the moderator effect of each dimension of parent involvement (duration or quality of involvement) 1) between verbal abilities and achievement in French and 2) between nonverbal abilities and achievement in Maths. Regression analyses were conducted following the procedure suggested by Baron and Kenny (1986) to test moderator effects: 1) test of the relation between the predictor variable (PPVT-R or TONI-2) and school achievement (French or Maths), 2) test of the relation between the moderator variable (parent involvement: duration or quality of engagement) and the school achievement, and 3) test of the relation between the predictor x the moderator and the achievement score.

Summary of regression analyses assessing the moderator role of parent involvement between children's cognitive verbal abilities and their school performance in French

Variables	R^2	B	SEB	b	F (change)
		Primary Parent			
Predictor variable PPVT-R	.27	.26	.06	.52**	16.36
Moderator variable Quality (Q)	.00	-.12	.54	-.03	0.05
Predictor x Moderator PPVT-R x Q	.19	.01	.00	.43*	10.50 (n.s.)
Moderator variable Duration (D)	.10	-.04	.02	-.32*	5.08
Predictor x Moderator PPVT-R x D	.02	-1.57	1.60	-.14	0.96
		Secondary Parent			
Moderator variable Quality (Q)	.20	1.01	.29	.45**	11.60
Predictor x Moderator PPVT-R x Q	.35	.01	.00	.60**	24.79 (**)
Moderator variable Duration (D)	.00	.01	.02	.06	0.16
Predictor x Moderator PPVT-R x D	.02	1.43	1.63	.13	0.77

* $p < .05$
** $p < .01$

Summary of regression analyses assessing the moderator role of parent involvement between children's cognitive non verbal abilities and their school performance in Mathematics

Variables	R^2	B	SEB	b	F (change)
		Primary Parent			
Predictor variable TONI-2	.07	.24	.13	.27	3.45
Moderator variable Quality (Q)	.01	-.42	.63	-.10	0.46
Predictor x Moderator TONI-2 x Q	.01	.00	.00	.11	0.55
Moderator variable Duration (D)	.14	-.05	.02	-.38**	7.30
Predictor x Moderator TONI-2 x D	.09	-3.79	1.80	-.30*	4.41 (n.s.)
		Secondary Parent			
Moderator variable Quality (Q)	.16	.99	.34	.40**	8.28
Predictor x Moderator TONI-2 x Q	.19	.01	.00	.41**	10.41 (n.s.)
Moderator variable Duration (D)	.00	-6.24	.02	.00	0.00
Predictor x Moderator TONI-2 x D	.00	1.02	2.21	.07	0.21

- Results indicated a significant positive relation between children's verbal abilities and their achievement in French (R^2 = .27, ß = .52, p < .002), but not between children nonverbal abilities and their achievement in Maths.

- Data indicated a negative relation between the duration of the primary parent involvement with homework and children's achievement in French and Maths (respectively R^2 = .10, ß = -.32, p < .029; and R^2 = .14, ß = -.38, p < .009) Such relations were not observed for the secondary parents.

- Data indicated a positive relation between the quality of involvement with homework of the secondary parents and children's achievement in French and Maths (respectively R^2 = .20, ß = .45, p < .001, and R^2 = .16, ß = .40, p < .006). Such relations were not observed with regard to the primary parents.

- Results indicated that the quality of involvement by the secondary parent was the only variable that acted as a moderator between children's cognitive verbal abilities and their achievement score in French (R^2 = .35, b = .60, p < .003).

CONCLUSION

Consistent with previous findings, the present results reaffirm the influence of cognitive abilities and emphasize the influence of parents involvement with homework on school achievement. However, the two dimensions of parent involvement are differently associated with children's school achievement as a function of the primary or secondary role of each parent.

The negative relation between the length of time spent by the primary parent in doing homework with his/her child is consistent with previous studies (e.g., Clark, 1993; Georges & Elliott, 1995). Our results did not clearly support the moderator effect of parent involvement in the relation between children's cognitive abilities and their school achievement. Nevertheless they have indicated the positive relation between the quality of involvement by the secondary parent and the child's school performance. These results suggest that both parents have complementary roles in supporting their child's school-related activities.

Understanding the role of parents involvement in children's academic achievement during the early elementary grades is particularly important, since after the third grade there is a great consistency in children's school performance (Reynolds & Bezrucko, 1993; Willms & Jacobsen, 1990). Further studies delineating the respective role of fathers and mothers in the supervision of their child's homework assignments should be undertaken with a larger sample. This would allow for the investigation of gender differences, since girls in early grades tend to outperform boys in language (e.g., Borg & Falzon, 1995) and mathematics (e.g., Hyde et al., 1990).

Particular attention should also be given to the influence of the family processes (e.g., the affective climate, the cognitive stimulation, the quality of the parent-child interaction) and characteristics (e.g., socioeconomic level) (Belsky & MacKinnon, 1994). More importance should also be attributed to identifying the role of children's school experience with peers and their engagement in the school as well as their school-related behavior, such as their cognitive self-control or their beliefs about themselves (Normandeau & Guay, 1996; Wentzell, 1991).

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